Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**CONSERVATION BLOWS IT UP LAB**

Conservation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Law of Conservation of Matter/Mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* Reactant: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Product: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chemical Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Procedure

1. Gather your materials: weigh boat of baking soda, 2 Ziploc bags, beaker of vinegar, scoopula, balance, beaker, 2 small test tubes
2. Add ~50mL of vinegar to Ziploc bag #1
3. Put a pea-sized amount of baking soda into the bottom of the small test tube
4. Place the test tube into the bag but do NOT let the vinegar mix with the baking soda
5. Put a beaker on the balance and press tare so that the mass returns to zero grams.
6. Put the bag + test tube into the beaker. Record the mass.
7. Mix the baking soda and vinegar with the bag OPEN.
8. Record the mass again.
9. Repeat this procedure, but keep the bag CLOSED when you mix the baking soda and vinegar.

**DATA TABLE**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Initial Mass** | **Final Mass** | **Change in Mass** |
| **Reaction 1 (bag open)** |  |  |  |
| **Reaction 2 (bag closed)** |  |  |  |

**POST-LABORATORY QUESTIONS (answer in complete sentences)**

1. What did you do differently in reaction 2, compared to reaction 1?
2. Was the change that occurred chemical or physical? How do you know?

1. Was there a change in mass in either of the reactions? **If so, why?**
2. In the second trial, why is the mass of the products and the reactants the same (or very similar)? **ANSWER THIS QUESTION IN COMPLETE SENTENCES AND BE SPECIFIC.**
3. How could you improve this experiment?
4. Explain how this equation illustrates the law of conservation of matter: H2 + O2 🡪 H2O2.

**CONSERVATION LAB PART 2: OBEY THE LAW**

**INTRODUCTION**

Do things just disappear? Can you really make something out of nothing? The answer to both of these questions is NO. Everything has to come from somewhere, and even when things cease to exist in their original form they have only been changed. The law of conservation of matter states that matter can neither be created nor destroyed- it can only change form.

Precipitate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**PRE-LABORATORY QUESTIONS**

1. What happens when you light a piece of paper on fire? Where does the paper go?
2. Do you think chemical reactions obey the law of conservation of matter? Explain your answer.

**MATERIALS**

* Large test tube
* Potassium iodide solution
* Small test tube
* Balance
* Silver nitrate solution
* Rubber stopper

**SAFETY PRECAUTIONS**

Use caution when handling silver nitrate. Eye protection is required.

**PROCEDURE**

1. Put on your goggles.
2. Fill your large test tube 25% full with KI solution.
3. Fill the small test tube 50% full with silver nitrate solution (AgNO3).
4. Carefully place the small test tube into the big test tube without spilling the contents of the small test tube.
5. Close the big test tube with a rubber stopper.
6. Mass the entire setup, flask test tube, stopper and solutions. Record.
7. Carefully invert the test tube and contents so that the two solutions mix. Observe and record.
8. Mass the set up again.

**DATA TABLE**

Initial mass of set up: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Final mass of set up: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**POST-LABORATORY QUESTIONS (complete sentences)**

1. What color was each solution?

1. What changes were seen after the two solutions were mixed?
2. Why does a precipitate settle to the bottom of the container (out of solution)?
3. Why can a precipitate be considered a sign of a chemical reaction?
4. Was there a change in the mass of the materials after the reaction?
5. What can you conclude about the chemical reactions and the Law of Conservation of mass?